

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:	John C. Pederson
Application No.:	<i>Pending</i>
Filed:	February 12, 2002
For:	LED REFLECTOR
Examiner:	Not Yet Assigned
Group Art Unit:	Not Yet Assigned

BOX NEW PATENT APPLICATION

Commissioner for Patents

Washington, D.C. 20231

Docket No: N47.2-10397

PRELIMINARY AMENDMENT

The present application is a divisional application related to patent application Serial No. 09/410,479 filed September 30, 1999, claiming priority to U.S. Provisional Patent Application Serial No. 60/147,240 filed August 4, 1999, the entire contents of which are incorporated herein by reference.

In the Specification:

Please amend the specification as follows:

On page 2, before line 1, please add the following paragraph:

--This application is a divisional of U.S. Patent Application Serial No. 09/410,479 filed September 30, 1999, which in turn claims priority to U.S. Provisional Patent Application Serial No. 60/147,240 filed August 4, 1999, the entire contents of which are incorporated herein by reference.--

On page 7, please replace line 21 with the following rewritten title:

--General Description of the Invention:--

On page 17, please delete the paragraph beginning with line 22 and ending on line 25.

On page 18, please replace the paragraph starting on line 10 with the following replacement paragraph:

--The Par 36 LED lamp 10 may be used in conjunction with an emergency vehicle 22, a vehicle, and/or a stand alone support such as a base or tripod 24. In addition, the Par 36 LED lamp 10 may be mounted upon the front or rear dashboards, or to a light bar 130 as integral to an emergency vehicle 22. Alternatively, the Par 36 lamp 10 may be mounted to a gyrator 32 for the provision of an oscillating and/or rotational light source as desired by an individual.--

On page 19, please replace the paragraph beginning on line 7, with the following rewritten paragraph:

--As may be seen in Figure 2, the body 36 of the housing 12 preferably includes one or more boss sections 46 which may be threaded and which are adapted to securely receive a screw 48. The screw 48 is preferably used to attach the culminator 18 and circuit board 14 to the body 36. The boss sections 46 are preferably positioned at equal distances around the circumference and perimeter of the body 36. As depicted in Figure 2, the Par 36 LED lamp 10 preferably has three equally spaced boss sections 46. The Par 36 LED lamp 10 also preferably has three equally spaced affixation members 114 which are used to secure the rear dome 34 to the body 36. The number of affixation members 114 or boss sections 46 may be increased or decreased at the preference of an individual provided that a sufficient number of boss sections 46 are provided to securely affix the culminator 18 and circuit board 14 to the housing 12 during use of the Par 36 LED lamp 10.--

On page 26, please replace the paragraph starting on line 31 with the following replacement paragraph:

--The culminator 18 may be shown in Figures 1, 2, 4, and 5. The culminator 18 preferably functions to reflect light along a desired visual line of sight as preferred by an individual. The culminator 18 is preferably formed of a cylindrical frame 80 which includes an array of reflector cups 82. The reflector cups 82 preferably pass through the frame 80 and provide openings for surrounding of an LED light source 16. The reflector cups 82 are preferably arranged for positioning proximate to and over the LED light sources 16 as attached to the circuit board 14 during use of a Par 36 LED lamp 10. It should be noted that the reflector cups 82 are preferably aligned in the identical vertical columns 62 and/or horizontal rows 64 as the LED light sources 16. Each reflector cup 82 preferably includes an angular interior surface 84 which may have a reflector 86 integral thereto.--

On page 27, please replace the paragraph starting on line 29 with the following replacement paragraph:

--The culminator 18 may include one or more apertures which are designed for receiving engagement of the screw 48 used for affixation of the culminator 18 to the circuit board 14 and to the boss section 46 of the body 36.--

On page 28, please insert the following paragraph before line 1:

--The spacing between adjacent culminator reflector cups 82 may vary. As may be seen in Figure 2, adjacent reflector cups 82 are separated and do not intersect. As may be seen in Figure 1, the reflector cups 82 are tightly spaced and/or compacted in close proximity to each other, where the angular interior surfaces 84 of adjacent reflector cups 82 intersect to form a cutout and/or groove 85. The cutouts and/or grooves 85 may be aligned in horizontal rows and/or vertical columns within the culminator 18. The cutouts and/or grooves 85 resulting from the intersection between the angular interior surfaces 84 of adjacent reflector cups 82 is generally dictated by a desired spacing between adjacent LED light sources 16.--

Please replace the paragraph beginning at line 1 of page 28 with the following rewritten paragraph:

--The lens cover 20 is preferably rounded to assist in providing aerodynamic efficiency for the Par 36 LED lamp 10 during use. The lens cover 20 is preferably positioned over the culminator/reflector 18, LED light sources 16, and circuit board 14 and is preferably secured to the heat sink housing 12 during assembly of the Par 36 LED lamp 10 by the engagement between the screws 48 into the boss sections 46. The front lens cover 20 may be formed of plastic or glass material at the discretion of an individual and preferably includes a cylindrical support ring 90 and a dome shaped protector portion 92. The interface between the front lens cover 20 and the heat sink housing 12 may include the use of a gasket to form a seal to prevent environmental contamination and/or water exposure to the circuit board 14 and LED light sources 16 during use of the Par 36 LED lamp 10. During assembly of the Par 36 LED lamp 10 the interior between the dome shaped protector portion 92 and the culminator 18 may be exposed to a nitrogen gas flush to reduce and/or eliminate water condensation to enhance the performance and efficiency of the Par 36 LED lamp 10.--

Please replace the paragraph beginning at line 15 of page 28 with the following rewritten paragraph:

--As may be seen in Figure 2, the lens cover 20 may include a rearwardly extending support 94 which includes the locking tabs 50 which are used to secure the lens cover 20 to the receiving channels 51 of the heat sink housing 12. The rearwardly extending support 94 may alternatively be a finger for sliding penetrating engagement within the receiving channels 51 to secure the lens cover 20 to the body 36. Alternatively, the lens cover 20 may be affixed to the body 36 through the use of a screw or bolt as preferred by an individual. It should be noted that any other desired affixation mechanism may be used to couple the lens cover 20 to the heat sink housing 12 as preferred by an individual including, but not limited to, threaded couplers.--

On page 28, please replace the paragraph starting on line 31 with the following replacement paragraph:

--As depicted in Figure 3 the Par 36 LED lamp 10 may be affixed to a gyrator 32 as mounted to a base 24. The gyrator 32 may be used to impart motion to the Par 36 LED lamp 10. This rotation may include oscillating, revolving, and/or any other type of rotation as desired by an individual. The gyrator 32 generally includes electric motors and gears 116. The gyrator 32 is preferably configured to receive the plug in adaptor 56 of the Par 36 LED lamp 10. Power cable 104 may then be connected to a power supply for rotation and/or oscillation of the Par 36 LED lamp 10 during use.--

On page 33, please replace the paragraph starting on line 14 with the following replacement paragraph:

--The Par 36 LED lamp 10 may also include a plug-in adaptor or connector 56 which preferably interfaces for coupling engagement to a cigarette lighter of a motor vehicle 22. Low voltage power output is thereby available for the Par 36 LED lamp 10. Alternatively, the Par 36 LED lamp 10 may include a power cord which resembles a power cord for a cellular telephone or any other type of power cord as desired by an individual. Further, the Par 36 LED lamp 10 may be powered through the use of batteries.--

On page 34, please replace the paragraph starting on line 21 with the following replacement paragraph:

--In an alternative embodiment as depicted in Figure 12, an LED utility lamp 10 is depicted. In this embodiment, the LED utility lamp 10 is generally rectangular and/or square in shape and is adapted to be secured at any location about a vehicle. As depicted in Figure 8, the LED utility lamp 10 may be affixed proximate to the front grill and/or rear bumper of a vehicle 22. The LED utility lamp 10 preferably includes a housing 12, circuit board 14, individual LED light sources 16, culminator 18, and a lens cover 20 as earlier described. The main difference

between the embodiment as depicted in Figure 12 and the earlier embodiment described is the shape of the housing 12 and lens cover 20. In the embodiment as depicted in Figure 12 the housing 12 includes a rear panel 118 in substitution for the rear dome 34. The rear panel 118 is preferably flat and functions as a heat shield and as a mounting surface for one or more affixation brackets 120 which are preferably used to secure the LED utility lamp 10 to a vehicle proximate to the front bumper or to the rear bumper. Any desired type of affixation means may be used to attach the affixation brackets 120 to a vehicle including but not limited to the use of bolts and nuts, screws, pins, welds, and/or fasteners. The affixation brackets 120 may include clips, apertures, and/or key holes 122 which may assist in the attachment of the utility LED lamp 10 to a vehicle 22. Alternatively, the LED utility lamp 10 may be positioned at any other desired location within the interior or to the exterior of an emergency vehicle. It should be noted that the LED utility lamp 10 may be permanently or releasably secured to a vehicle 22.--

In the Claims:

Please cancel claims 1-20.

Please add new claims 21-29 as follows:

21. (New) A light emitting diode reflector comprising:

a housing, the housing defining a plurality of chambers, each chamber having:

a bottom and a top, the bottom having an opening therethrough;

at least one exterior wall, each of the exterior walls extending upwardly from the bottom, each of the exterior walls having an inside surface diverging outwardly from said bottom as the exterior wall extends upwardly; and

a pair of interior walls, each of the interior walls extending upwardly from the bottom, each of the interior walls having an inside face diverging outwardly from said bottom, at least a portion of at least one of the interior walls having a height less than the exterior walls;

the at least one exterior wall and the at least one interior wall having a light reflecting section whereby said opening is constructed and arranged for positioning proximate to

a light emitting diode light source for reflection of light emitted from said light emitting diode light source.

22. (New) The light emitting diode reflector according of claim 21, wherein the plurality of chambers are positioned along a common axis of the housing.

23. (New) The light emitting diode reflector according of claim 21, the plurality of chambers comprising at least a first chamber a second chamber and a third chamber.

24. (New) The light emitting diode reflector according of claim 23, wherein the second chamber is immediately adjacent to the first chamber and the third chamber.

25. (New) The light emitting diode reflector according of claim 24, wherein one of the pair of interior walls of the first chamber intersects with one of the interior walls of the second chamber, and one of the pair of interior walls of the third chamber intersects with one of the interior walls of the second chamber.

26. (New) The light emitting diode reflector according of claim 21, wherein at least one of the interior walls of each chamber have a groove at an intersection of adjacent interior walls, the groove extending downward from the top of the chamber toward the bottom, the groove not extending to the bottom.

27. (New) The light emitting diode reflector according of claim 26, wherein each groove has a top diameter and a bottom diameter, the top diameter being greater than the bottom diameter.

28. (New) The light emitting diode reflector according of claim 27, wherein each groove is shaped such that the diameter of the groove gradually tapers from the top diameter to the bottom

diameter.


29. (New) The light emitting diode reflector according of claim 28, wherein each groove is scallop shaped.

CONCLUSION

Please enter the above-identified amendments to the specification and claims prior to the examination of this application. Should the Examiner have any questions concerning the above-identified amendments to the claims and specification, the Examiner is cordially invited to contact the undersigned by telephone, facsimile, and/or E-Mail at the below identified address. In view of the foregoing it is believed that the present application is in condition for allowance. Early action to that effect is earnestly solicited. Applicant has attached hereto a marked-up version showing changes made to the specification.

Respectfully submitted,
VIDAS, ARRETT & STEINKRAUS, P.A.

Date: 2-18-02

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

On page 7, line 21 has been amended with the following rewritten title:

[Summary] General Description of the Invention:

On page 18, the paragraph starting on line 10, has been amended as follows:

The Par 36 LED lamp 10 may be used in conjunction with an emergency vehicle 22, a vehicle, and/or a stand alone support such as a base or tripod 24. In addition, the Par 36 LED lamp 10 may be mounted upon the front or rear dashboards, [front or rear bumpers,] or to a light bar [30] 130 as integral to an emergency vehicle 22. Alternatively, the Par 36 lamp 10 may be mounted to a gyrator 32 for the provision of an oscillating and/or rotational light source as desired by an individual.

On page 19, the paragraph beginning with line 8 has been amended as follows:

As may be seen in Figure 2, the body 36 of the housing 12 preferably includes one or more boss sections 46 which may be threaded and which are adapted to securely receive a screw 48. The screw 48 is preferably used to attach the culminator 18 and circuit board 14 to the body 36. The boss sections 46 are preferably positioned at equal distances around the circumference and perimeter of the body 36. As depicted in Figure 2, the Par 36 LED lamp 10 preferably has three equally spaced boss sections 46. The Par 36 LED lamp 10 also preferably has three equally spaced affixation members 114 which are used to secure the rear dome 34 to the body 36. The number of affixation members 114 or boss sections 46 may be increased or decreased at the preference of an individual provided that a sufficient number of boss sections 46 are provided to securely affix the culminator 18 and circuit board 14 to the housing 12 during use of the Par 36 LED lamp 10. [It should be noted that the affixation members 114 may additionally include threaded bores which are adapted to receive a securing mechanism such as a

screw 50 which may be used to releasably attach the rear dome 34 to the housing 12.]

On page 26, please the paragraph starting on line 31 has been amended as follows:

The culminator 18 [is] may be shown in [Figure 2] Figures 1, 2, 4, and 5. The culminator 18 preferably functions to reflect light along a desired visual line of sight as preferred by an individual. The culminator 18 is preferably formed of a cylindrical frame 80 which includes an array of reflector cups 82. The reflector cups 82 preferably pass through the frame 80 and provide openings for surrounding of an LED light source 16. The reflector cups 82 are preferably arranged for positioning proximate to and over the LED light sources 16 as attached to the circuit board 14 during use of a Par 36 LED lamp 10. It should be noted that the reflector cups 82 are preferably aligned in the identical vertical columns 62 and/or horizontal rows 64 as the LED light sources 16. Each reflector cup 82 preferably includes an angular interior surface 84 which may have a reflector 86 integral thereto.

On page 27, the paragraph starting on line 29 has been amended as follows:

The culminator [14] 18 may include one or more apertures which are designed for receiving engagement of the screw 48 used for affixation of the culminator 18 to the circuit board 14 and to the boss section 46 of the body 36.

The paragraph on page 28, beginning at line 1 has been amended as follows:

The lens cover 20 is preferably rounded to assist in providing aerodynamic efficiency for the Par 36 LED lamp 10 during use. The lens cover 20 is preferably positioned over the culminator/reflector 18, LED light sources 16, and circuit board 14 and is preferably secured to the heat sink housing 12 during assembly of the Par 36 LED lamp 10 by the engagement between the [locking tabs] screws 48 into the [receiving channels] boss sections 46. The front lens cover 20 may be formed of plastic or glass material at the discretion of an individual and preferably includes a cylindrical support ring 90 and a dome shaped protector

portion 92. The interface between the front lens cover 20 and the heat sink housing 12 may include the use of a gasket to form a seal to prevent environmental contamination and/or water exposure to the circuit board 14 and LED light sources 16 during use of the Par 36 LED lamp 10. During assembly of the Par 36 LED lamp 10 the interior between the dome shaped protector portion 92 and the culminator 18 may be exposed to a nitrogen gas flush to reduce and/or eliminate water condensation to enhance the performance and efficiency of the Par 36 LED lamp 10.

The paragraph beginning at line 15 of page 28 has been amended as follows:

As may be seen in Figure 2, the lens cover 20 may include a rearwardly extending support 94 which includes the locking tabs [48] 50 which are used to secure the lens cover 20 to the receiving channels [46] 51 of the heat sink housing 12. The rearwardly extending support 94 may alternatively be a finger for sliding penetrating engagement within the receiving channels [46] 51 to secure the lens cover 20 to the body 36. Alternatively, the lens cover 20 may be affixed to the body 36 through the use of a screw or bolt as preferred by an individual. It should be noted that any other desired affixation mechanism may be used to couple the lens cover 20 to the heat sink housing 12 as preferred by an individual including, but not limited to, threaded couplers.

The paragraph beginning on page 28, starting on line 31, has been amended as follows:

As depicted in Figure 3 the Par 36 LED lamp 10 may be affixed to a gyrator 32 as mounted to a base [102] 24. The gyrator 32 may be used to impart motion to the Par 36 LED lamp 10 [at the preference of an individual]. This rotation may include oscillating, revolving, and/or any other type of rotation as desired by an individual. The gyrator 32 generally includes electric motors and gears 116. The gyrator 32 is preferably configured to receive the plug in adaptor 56 of the Par 36 LED lamp 10. Power cable 104 may then be connected to a power

supply for rotation and/or oscillation of the Par 36 LED lamp 10 during use.

The paragraph starting on page 33, line 14 has been amended as follows:

The Par 36 LED lamp 10 may also include a plug-in adaptor or connector 56 which preferably interfaces for coupling engagement to a cigarette lighter of a motor vehicle 22. Low voltage power output is thereby available for the Par 36 LED lamp 10. Alternatively, the Par 36 LED lamp 10 may include a power cord which resembles a power cord for a cellular telephone or any other type of power cord as [an] desired by [as] an individual. Further, the Par 36 LED lamp 10 may be powered through the use of batteries [at the discretion of as individual].

The paragraph starting on page 34, starting on line 21 has been amended as follows:

In an alternative embodiment as depicted in Figure 12, an LED utility lamp 10 is depicted. In this embodiment, the LED utility lamp 10 is generally rectangular and/or square in shape and is adapted to be secured at any location about a vehicle. As depicted in Figure 8, the LED utility lamp 10 may be affixed proximate to the front grill and/or rear bumper of a vehicle 22. The LED utility lamp 10 preferably includes a housing 12, circuit board 14, individual LED light sources 16, culminator 18, and a lens cover 20 as earlier described. The main difference between the embodiment as depicted in Figure 12 and the earlier embodiment described is the shape of the housing 12 and lens cover 20. In the embodiment as depicted in Figure 12 the housing 12 includes a rear panel 118 in substitution for the rear dome 34. The rear panel 118 is preferably flat and functions as a heat shield and as a mounting surface for one or more affixation brackets 120 which are preferably used to secure the LED utility lamp 10 to a vehicle proximate to the front bumper or to the rear bumper. Any desired type of affixation means may be used to attach the affixation brackets [130] 120 to a vehicle including but not limited to the use of bolts and nuts, screws, pins, welds, and/or fasteners. The affixation brackets 120 may include clips, apertures, and/or key holes 122 which may assist in the attachment of the utility LED lamp 10 to

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a vehicle 22. Alternatively, the LED utility lamp 10 may be positioned at any other desired location within the interior or to the exterior of an emergency vehicle [as preferred by an individual]. It should be noted that the LED utility lamp 10 may be permanently or releasably secured to a vehicle 22 [at the preference of an individual].

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